

VALUE ENGINEERING CHANGE PROPOSAL  
MISSOURI DEPARTMENT OF TRANSPORTATION

Federal  
oversight

6A  
JV  
7-27-11

☐ Conceptual Proposal ☒ Final Proposal

Date 5/24/11

Contract ID 091218-401

Job No. J4I1597

County Jackson I-70

Original Bid Cost \$39,337,176.89

Contractor Clarkson Construction Company

By T. F. Kellerman

Designed By Clarkson Construction Company

Phone 816-483-8800

VECP# 11-43 (to be completed by C.O.)

VECP ☒ or PDVECP ☐

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages  
See letter dated May 24, 2011, attached hereto.

2. Estimate of reduction in construction costs. \$60,328.25

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

We are not aware of an effect on other department costs due to this proposal.

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

May 24, 2011

(date)

5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

ASAP

(date)

(effect)

6. Dates of any previous or concurrent submission of the same proposal.

N/A

(date and/or dates)

Additional Comments:

**\*\* Portion Below This Line To Be Filled Out by MoDOT \*\***

**Comments:** This VECP is recommended for approval based on concurrence with District Design staff, Project Manager and Geologist. The compacting embankment material will need to meet the requirements for embankment and backfill according to the contract JSP W. In addition, an estimated 1.3 acre of seeding (Line 1610) will need to be applied to the new slope. This amount (\$1,344) is not included in the VECP proposal, but will be added to the change order, and deducted from the total savings.

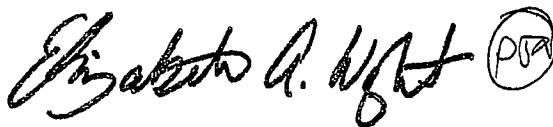


Submitted By Resident Engineer

05/25/2011

Date

**Comments:** BASED ON THE SUPPORTING DOCUMENTATION AND AFTER DISCUSSIONS WITH THE RE AND DESIGN REPRESENTATION, WE CONCUR WITH THE RECOMMENDATION.

 (PSA)



Approval  
Recommended



Rejection  
Recommended

District Engineer

5/31/11

Date

**Comments:** SEE ATTACHED CORRESPONDENCE FROM KELIN FRANK



Approval  
Recommended



Rejection  
Recommended

Federal Highway Administration  
Required for FHWA Full Oversight Projects

Date

**Comments:** CONCEPT APPROVED. FINAL APPROVAL CONTINGENT UPON  
DETAIL DESIGN THAT ADDRESSES FHWA + MoDOT GEOTECH  
ISSUES



Approval



Rejection

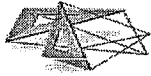



State Construction and Materials Engineer

7-25-11

Date

**Distribution:** Resident Engineer, Project Manager, District Construction & Materials Engineer, State Construction & Materials Engineer, FHWA Value Engineering Administrator - MoDOT, P. O. Box 270, Jefferson City, MO 65102



RE: VE proposal changes   
Dennis G Bryant to: Kevin.Irving

06/30/2011 01:15 PM

Kevin,

In regard to item 2 I am primarily referencing Mike Fritz's concerns detailed in his email dated June 20, 2011. The text follows:

*I discussed the proposal with Jay Bestgen and Dennis Bryant . We accept the proposal conceptually . Based on information from the supplier , their system has been used for this type application . It appears the 3.5 ft. anchors would be appropriate , but we don't know what has been included in the proposal . We believe the system needs to be designed , signed and sealed by an engineer before we can give final approval . If there is a standard design guide for the ArmorMax System , the designer needs to verify that this application meets the requirements of the design guide .*

*The designer also needs to verify that the damage to the grid due to driving the guardrail is acceptable . The designer needs to verify that the design life for the anchors is appropriate and the UV resistance of the reinforcement mat is adequate . Vegetation of the system is critical to prevent further UV degradation . Vegetation type should be considered since the fill will be well drained and we may have an arid environment .*

*We are expecting more information from the supplier , but it probably won't change our decision .*

These concerns have been shared with the contractor and he has agreed to address them in the detail design. I don't know that a satisfactory answer to your specific questions exists at this time because Clarkson has not authorized the vendor to proceed with that design. Certainly there won't be any final approval of any plan until our Geotech Section has had an opportunity to review it in detail and satisfy themselves that it is satisfactory.

It is my understanding as well that this will not impact the contract schedule in a negative way and that there will be a net savings.

I don't know about the mowing issue. The slopes are pretty steep through there now and we typically don't mow steep slopes. I'll have to defer to the district on that question.

Dennis, I realize that you were going to send me...

06/30/2011 12:18:29 PM

From: <Kevin.Irving@dot.gov>  
To: <Dennis.Bryant@modot.mo.gov>  
Cc: <Perry.Allen@modot.mo.gov>  
Date: 06/30/2011 12:18 PM  
Subject: RE: VE proposal changes

Dennis,

I realize that you were going to send me your comments but I wanted to provide you some comments given the time urgency:

1. The 1:1 slope will present mowing issues for maintenance since mowers cannot navigate a 1:1 slope safely. Has this been considered in the review process?
2. You mentioned that MoDOT has reached agreement in principle with the contractor on all issues. Please share how these issues have been resolved?

For example, how are they going to deal with the concern of confining the sand material at the face of the fill that Mike Fritz mentioned? What type of vegetation mix is proposed, etc.?

3. It is my understanding that this proposal will not delay the project schedule and the final proposal will result in net savings to the contract.

I am supportive of this approach from a conceptual standpoint based on our discussions this morning and with the understanding that the comments/issues presented by MoDOT and FHWA are addressed in a satisfactory manner in the revised design plans. One of the key considerations in this VECP review is the fact that (as Mike Fritz mentioned) the Armormax product has the potential to provide an additional design option for future MoDOT projects (if successful) and therefore is providing the benefit of innovation to the project.

Hopefully this provides a path forward for this VECP. I look forward to reviewing the revised design plans when they are available.

Thanks,  
Kevin

-----Original Message-----

From: Dennis.Bryant@modot.mo.gov [mailto:Dennis.Bryant@modot.mo.gov]

Sent: Monday, June 27, 2011 7:42 AM

To: Irving, Kevin (FHWA)

Subject: Fw: VE proposal changes

Kevin,

Subsequent to this letter from Mike Fritz the the District has been in discussion with the contractor. We have agreement in principle from the contractor on all issues including engineer sealed plans for all aspects of installation. The savings will be unimpressive but Mike sees benefit in learning about the ArmorMax system. If it works well here it could be an alternate bid option in future projects in the KC area.

I'll call later this morning to discuss.

----- Forwarded by Dennis G Bryant/SC/MODOT on 06/27/2011 07:37 AM -----

From: Mike A Fritz/SC/MODOT  
To: Perry J Allen/D4/MODOT@MODOT  
Cc: Bruce A Harvel/D4/MODOT@MODOT, Dennis G Bryant/SC/MODOT@MODOT, Gregory L Stervinou/D4/MODOT@MODOT, David D Ahlvers/SC/MODOT@MODOT, Jay Bestgen/SC/MODOT@MODOT  
Date: 06/21/2011 07:31 AM  
Subject: Re: Fw: VE proposal changes

Perry,

I had another discussion with Tom Fennessey in my office this morning. As I noted yesterday, as long as our questions are addressed, we believe the proposal is acceptable. However, we see a problem with constructability of

a 1:1 sand slope without some confinement at the face. We believe the geogrid will provide confinement within the embankment, but compaction will be difficult (impossible) near the face,

I believe clay with geogrid could be constructed on a 1:1, but it would still be difficult to compact at the face and 18" of clay may not provide adequate confinement for the sand fill.

One possible solution would be to construct the soil cap at the same time as the sand fill and reinforce the entire mass with geogrid. I believe two to three feet of clay would be required with the geogrid extended at least part of the way into the soil. The loose excess material near the face could be scalped off before the ArmorMax system is applied.

Perhaps the contractor has another acceptable construction method, we just wanted to note our concerns.

Thanks,  
Mike

From: Perry J Allen/D4/MODOT  
To: Mike A Fritz/SC/MODOT@MODOT  
Cc: Bruce A Harvel/D4/MODOT@MODOT, Dennis G Bryant/SC/MODOT@MODOT, Gregory L Stervinou/D4/MODOT@MODOT, David D Ahlvers/SC/MODOT@MODOT, Jay Bestgen/SC/MODOT@MODOT  
Date: 06/20/2011 03:20 PM  
Subject: Re: Fw: VE proposal changes

Mike

Thanks for the review. We will work with Clarkson to tie up the loose ends.

I will take the first pass with Kevin to discuss the merits of this proposal. I am sure he will want concurrence from our geotech folks especially since we have not utilized this product before.

I'll let you know our status.

Thanks

\*\*\* My office phone number has changed - Please see the new number below  
\*\*\*

Perry J. Allen Jr. P.E.  
District Construction / Materials Engineer  
District 4  
MoDOT  
600 NE Colbern Road  
Lee's Summit, MO 64086  
816.607.2102

From: Mike A Fritz/SC/MODOT  
To: Perry J Allen/D4/MODOT@MODOT

MoDOT  
600 NE Colbern Road  
Lee's Summit, MO 64086  
816.607.2102

----- Forwarded by Perry J Allen/D4/MODOT on 06/15/2011 03:52 PM -----

From: Kim Wilson <KWilson@ClarksonConstruction.com>  
To: "Gregory.Stervinou@modot.mo.gov"  
<Gregory.Stervinou@modot.mo.gov>  
Cc: "Lucas.Kaspar@modot.mo.gov" <Lucas.Kaspar@modot.mo.gov>, Tom  
Kellerman <tkellerman@clarksonconstruction.com>,  
"Perry.Allen@modot.mo.gov" <Perry.Allen@modot.mo.gov>  
Date: 06/15/2011 03:25 PM  
Subject: VE proposal changes

Greg,  
Attached is a letter for our VE proposal which should address the items  
from our last meeting. We have found a system which will stabilize our 1:1  
slope more economically than grouting a rock blanket. Info for the system  
and a revised typical section are also attached. I'll bring copies to our  
meeting tomorrow.

Kim[attachment "VE proposal letter.pdf" deleted by Mike A Fritz/SC/MODOT]  
[attachment "typical section.pdf" deleted by Mike A Fritz/SC/MODOT]  
[attachment "armormax.pdf" deleted by Mike A Fritz/SC/MODOT]

Cc: Bruce A Harvel/D4/MODOT@MODOT, Dennis G Bryant/SC/MODOT@MODOT,  
Gregory L Stervinou/D4/MODOT@MODOT, David D  
Ahlfvers/SC/MODOT@MODOT, Jay Bestgen/SC/MODOT@MODOT  
Date: 06/20/2011 02:56 PM  
Subject: Re: Fw: VE proposal changes

Perry,

I discussed the proposal with Jay Bestgen and Dennis Bryant. We accept the proposal conceptually. Based on information from the supplier, their system has been used for this type application. It appears the 3.5 ft. anchors would be appropriate, but we don't know what has been included in the proposal. We believe the system needs to be designed, signed and sealed by an engineer before we can give final approval. If there is a standard design guide for the ArmorMax System, the designer needs to verify that this application meets the requirements of the design guide.

The designer also needs to verify that the damage to the grid due to driving the guardrail is acceptable. The designer needs to verify that the design life for the anchors is appropriate and the UV resistance of the reinforcement mat is adequate. Vegetation of the system is critical to prevent further UV degradation. Vegetation type should be considered since the fill will be well drained and we may have an arid environment.

We are expecting more information from the supplier, but it probably won't change our decision.

Have we discussed this proposal with FHWA? Dennis Bryant and I are willing to meet with Kevin Irving if necessary.

Let me know if you need anything else.

Thanks,  
Mike

From: Perry J Allen/D4/MODOT  
To: Mike A Fritz/SC/MODOT@MODOT, Bruce A Harvel/D4/MODOT@MODOT,  
Dennis G Bryant/SC/MODOT@MODOT  
Cc: Gregory L Stervinou/D4/MODOT@MODOT  
Date: 06/16/2011 03:16 PM  
Subject: Fw: VE proposal changes

Mike / Bruce

Please review Clarkson's alternate for stabilizing the in slope.

Let me now what you think.

Thanks

\*\*\* My office phone number has changed - Please see the new number below  
\*\*\*

Perry J. Allen Jr. P.E.  
District Construction / Materials Engineer  
District 4

# VALUE ENGINEERING CHECK SHEET

## TYPE OF WORK

(Check one that applies)

- ☐ Bridge/Structure/Footings
- ☐ Drainage Structures (RCP, RCB, CMP's, ect.)
- ☐ TCP/MOT  
Paving (PCCP, ect.)
- ☒ Grading/MSE Walls
- ☐ Signal/Lighting/ITS
- ☐ Misc. \_\_\_\_\_

## SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

\_\_\_\_\_ Use engineered slope system in lieu of planned rock fill.

## SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.

\_\_\_\_\_ Scan entire document.